



W6 The Impact of Emerging Technologies on Digital & Multimedia Forensics

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Learning Overview: The goals of this presentation are to: (1) inform participants of emerging technologies affecting digital forensic science today; (2) identify technologies on the horizon that will be impacting the world of forensics science; (3) learn practical techniques for addressing new technology questions in their field of practice; (4) network with other interested researchers, academics, and practitioners to affect their thinking on new and emerging technology issues; and (5) learn of real-world implications as case studies are presented across a wide variety of topics throughout the workshop.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by raising awareness of current emerging and horizon technologies impacting the world of forensic science today. This presentation will stimulate research among the participants and their organizations and provide opportunity for participants of varying interests to identify like-minded individuals to collaborate on research ideas. Finally, this presentation will continue to establish the American Academy of Forensic Sciences as a leader in the world of digital forensic science through forward-looking preparation of the digital forensics community for the challenges that are coming.

As technology continues to evolve and morph into new formats and platforms, the challenge of digital and multimedia forensics progresses as well. Digital forensics experiences dynamic changes caused by the rapid progression of technology, new inventions with new applications, and the continued miniaturization and complexity of the technologies arriving at digital forensics labs. Looking toward the horizon, bigger challenges emerge with how scientists will successfully perform digital forensics on new platforms that do not yet exist. New methods for storing data are emerging with ways that computing can be performed across new types of devices that have not yet been encountered in the history of digital forensics.

While many forensic science disciplines encounter iterative change enabled by new methods and new technologies, digital forensic science encounters revolutionary change across devices and technologies not yet created. Digital forensic practitioners are heavily affected by the market forces driving adoption of new technologies. Market adoption of emerging technologies leads to these same new technology devices appearing in evidence queues to be addressed by practitioners that have not yet been trained on these devices. What methods and research exist in emerging technology areas that can inform discreet problem statements while finding applicability across other new technology devices as well?

Garfinkel identified that standardization and validation must be strengthened to meet the challenge coming with future technologies.¹ Lillis et al. identify that future digital challenges in and of themselves can hamper investigations, but the cumulative effect amplifies these difficulties.² Caviglione et al. call out the need for multidisciplinary approaches spanning multiple fields to address the future of digital forensics.³

Reference(s):

1. S.L. Garfinkel. Digital Forensics Research: The Next 10 Years. *Digital Investigation*. Vol. 7 supplement, 2010, pp. S64–S73.
2. Lillis, David; Becker, Brett A.; O’Sullivan, Tadhg; and Scanlon, Mark. *Current Challenges and Future Research Areas for Digital Forensic Investigation*. (2016). Annual ADFSL Conference on Digital Forensics, Security and Law. 6. <https://commons.erau.edu/adfsl/2016/tuesday/6>.
3. L. Caviglione, S. Wendzel, and W. Mazurczyk. The Future of Digital Forensics: Challenges and the Road Ahead. *IEEE Security & Privacy*. Vol. 15, no. 6, pp. 12-17, 2017. doi:10.1109/MSP.2017.4251117.

Digital Forensics, Emerging Technologies, Future Technologies